

(S) NATIONAL RECONNAISSANCE OFFICE

WASHINGTON, D.C.

THE NRO STAFF

*Written as  
COMIREX-D-13.16/5*

13.16/5

WT, MC, EP

MC

MEMORANDUM FOR CHAIRMAN, COMIREX

SUBJECT: Imagery Reconnaissance Requirements

REFERENCES: (a) USIB-D-41.15/79 (COMOR D-48/115, dated 16 September 1966 and approved on 8 November 1966)

(b) USIB-D-46.4/27 (COMIREX D-13.16/3, dated 4 February 1969)

(c) USIB-D-46.9/3 (COMIREX D-16.2/1, dated 9 April 1969)

The purpose of this paper is to request a redefinition of the current reconnaissance requirements in light of the new CORONA Targeting Program (CTP) software system capabilities, in order to improve operational efficiency and thereby increase the overall satisfaction of intelligence requirements. A proposed redefinition of the requirements is offered for consideration.

On 8 November 1966, the United States Intelligence Board (USIB) approved a plan (reference a) for using CORONA KH-4 missions primarily in a search mode. The requirements, as stated in the plan, were reaffirmed with some modifications by COMIREX on 4 February 1969 (reference b) and stipulated stereoscopic cloud-free (about 90 percent) photography of the following: \*

a. About 80 to 90 percent of the built-up areas (6.8 million square nautical miles) of the Soviet Bloc and Communist China semi-annually.

b. About 75 percent of the underdeveloped areas (2.8 million square nautical miles) of the Soviet Bloc and Communist China annually.

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\*In meeting the search requirement, monoscopic photography is included when it is judged adequate for search purposes.

NRO review(s) completed.

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c. Approximately 2.5 million square nautical miles of intelligence coverage outside the Soviet Bloc and Communist China annually.

d. Approximately 6.1 million square nautical miles (as of March 1969) of coverage outside the Soviet Bloc and Communist China for mapping and charting. The NRO is to allocate a portion of film to mapping and charting and to take maximum advantage of weather opportunities in areas of interest to mapping and charting, without interfering with the specific requirements for the collection of other intelligence.

e. Areas and targets of current intelligence interest as directed by COMIREX on a mission-by-mission basis.

The built-up and underdeveloped areas requiring periodic search are defined graphically in Attachment 1.

The CTP software has been used on Missions 1105 and 1106, launched 3 November 1968 and 5 February 1969, respectively. This software package proved to be very effective and efficient in the support of CORONA targeting. CTP can identify, account for, and file all search, mapping and charting, and high priority area (HPA) requirements by WAC cell. Each 18 by 12 nautical-mile WAC cell is identified either as semiannual or annual search, mapping and charting, or HPA, each with a different computer logic for processing such inputs as weather data, time since last photographed (search only), and sun angle, to arrive at a camera operation selection. In addition to the semiannual and annual search categories, CTP has the built-in capability for handling a third category of search, as well as search areas to be covered every mission (mission search). This latter category--mission search--differs from HPA's only in the software logic and CTP accountability of the cells.

In view of the capabilities of the newly developed CTP software system, it is appropriate at this time, after evaluating its performance on two previous missions, to propose a redefinition of the current requirements, paragraph 2 above, in such a way as to take full advantage of CTP.

a. The semiannual and annual search areas are presently defined by straight lines, corresponding to latitude and longitude lines, to differentiate between "built-up" and "underdeveloped" areas (see Attachment 1). There are some built-up areas located in the generally

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underdeveloped areas, and, conversely, mountain ranges, desert, and other underdeveloped regions exist within the built-up portion of the search area. Such areas may have been purposely neglected to simplify the requirements statement and rightly so when considering the former capabilities and limitations of CORONA software programs. However, with CTP, one can account for areas as small as 200 square nautical miles, i.e., a WAC cell. We are no longer limited to large land masses and latitude/longitude lines in our targeting. Thus, any semiannual search, which can be reclassified as annual search, will require only half as much photographic coverage, thereby making available more film for the built-up and high priority target area coverage.

b. There are certain areas, both inside and outside the Soviet Bloc and Communist China, which currently require searching more often than every 6 months. Such areas are now handled on a mission-by-mission basis as HPA's. Most of these areas are large, i.e., in excess of 100 WAC cells or 20,000 square nautical miles. When applying CTP's HPA logic to these areas, only the number of accesses and the climatology data for the current mission can be considered, since each mission is targeted against a different HPA list. The launch schedule and the corresponding climatology data are not a consideration, as is the case with semiannual and annual search logic. However, if these large HPA's could be placed in a special category, whereby they would be photographed within a period less than 6 months, e.g., over a two-mission period, then climatology and the launch schedule could be used together. Then, instead of attempting to photograph the same large area HPA on each of two consecutive missions, such an area would be photographed only on that mission during which it has the better climatology. This results in more efficient film utilization. Likewise, if there are small HPA's (less than 100 WAC cells) which could be placed in this same category, they too could be handled best over a two-mission period from a film management standpoint. The requirement for timely intelligence naturally takes precedence over film economy, and it is not the intention here to reclassify all HPA's.

c. The relative priority of HPA's with respect to search requirements should be stated in order that the available film can best be allocated towards satisfying these requirements. The Priority 1 areas, which now include all search and most of the HPA's, have on previous missions required more than 100 percent of the filmload to satisfy their

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coverage requirement. In managing film with CTP, priorities are an important input into the software system and need to be defined in order to satisfy first things first.

d. It is not clear whether Mongolia is a search area or not. The requirements statement refers to the Sino-Soviet Bloc, but the 9.6 million square-nautical-mile search area does not include the 400,000 square-nautical-mile area of Mongolia. Also, the Holiday Map which delineates the semiannual and annual search areas excludes Mongolia. This requires clarification within the statement of the requirement.

e. Reference a requires photographic coverage of approximately 2.5 million square nautical miles of intelligence coverage outside the Sino-Soviet Bloc annually. This is also stated in paragraph 2c of this paper. Such a requirement cannot be accounted for by CTP unless identified and categorized as search, HPA, or mapping and charting. Furthermore, this requirement is redundant since COMIREX now may direct unique, one-time search and surveillance of high intelligence interest areas in any amount on any mission, as stated in reference b.

The following conclusions have been reached:

a. The USIB plan for imagery reconnaissance requirements for CORONA, references a and b, should be redefined in light of the new CORONA CTP software system capabilities. The USIB plan should be restated in more definitive terms regarding area coverage from the standpoint of satisfying the needs of the intelligence community, as well as optimizing CORONA mission performance through more efficient film utilization.

b. Certain HPA's could be placed in a special category of film-managed HPA's in order to better employ climatology data with the launch schedule and to maximize film utilization efficiency.

c. A priority statement relating search to HPA's is needed for allocating filmload. Establishing HPA priority with respect to search would permit the proper percentages of filmload to be committed to the highest priority items first, particularly when the requirements exceed the available film.

d. Mongolia search requirements need to be addressed in the requirements statement for clarification. If Mongolia is not a search area, the requirements statement should so state.

e. The requirement to photograph 2.5 million square nautical miles of intelligence coverage outside the Soviet Bloc and Communist China annually is an unnecessary statement, as the requirement is covered without that statement.

The following actions are recommended:

a. That CORONA imagery reconnaissance requirements be redefined in such a way as to take full advantage of the current CTP software capability. A proposed redefinition of requirements is contained in Attachment 2. Attachment 3 is a supporting document which would be republished as requirements changed and would modify Attachment 2.

b. That search areas be defined at least to the nearest 16-cell Series 50 Air Target Chart. (One WAC area contains 25 Air Target Charts.)

c. That the HPA list be reviewed to identify those HPA's, by COMIREX number or WAC cell, which could be reclassified as "film-managed HPA's." Such a reclassification should include HPA's from outside the Bloc, as well as inside the Bloc, e.g., the Middle East.

d. That priorities be established for HPA's relative to search for each mission.

e. That Mongolia be classified as some type of search or be excluded from and so stated in the requirements statement. A means of handling this matter is incorporated into the proposed requirements statement, Attachment 2.

f. That the requirement for photographing 2.5 million square nautical miles of intelligence coverage outside the Bloc annually be deleted from the requirements statement as reflected in Attachment 2.



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The comments in this paper supplement the presentation recently given COMIREX on the impact of the increasing number of HPA's on requirement satisfaction. This office will be happy to furnish further amplification if required.



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Brigadier General, USAF  
Director


Attachments - 3

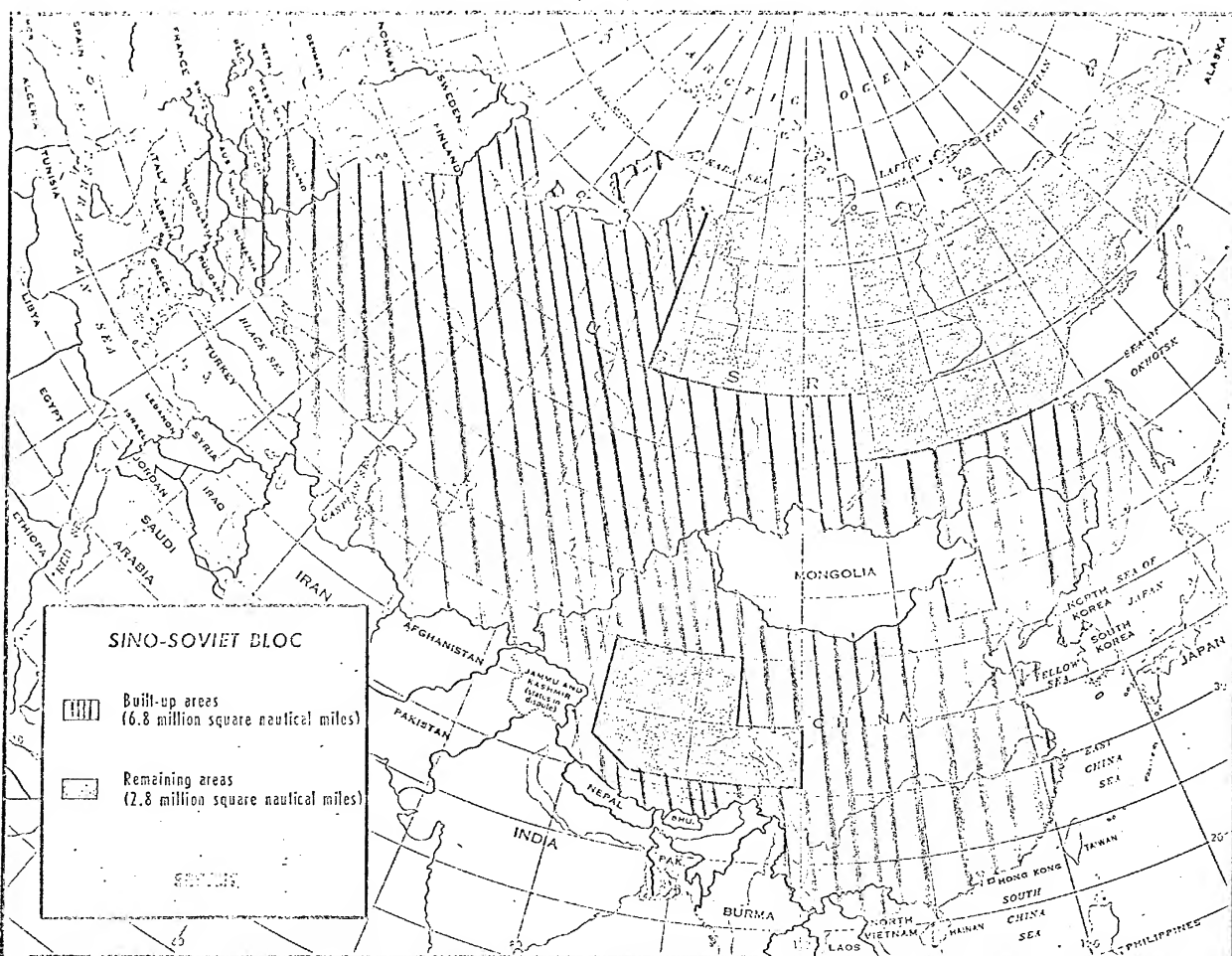
1. Semiannual and Annual Search Areas
2. Proposed Redefinition of Requirements
3. Proposed Supporting Document

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Attachment 1

Attach 1

PROPOSED REDEFINITION  
OF  
CORONA IMAGERY RECONNAISSANCE REQUIREMENTS

1. CORONA KH-4 missions will function primarily as a search vehicle to obtain cloud-free (about 90 percent or better) stereoscopic photography of the following:

a. At least 80 percent of the built-up areas of the USSR, China, North Vietnam, North Korea, (Mongolia), and the Eastern European Communist countries semiannually. \*

b. At least 75 percent of the underdeveloped areas of the USSR, China, North Vietnam, North Korea, (Mongolia), and the Eastern European Communist countries annually.

c. Areas and targets of current intelligence interest as directed by COMIREX on a mission-by-mission basis. \*\*

d. Areas and targets of special intelligence interest as directed by COMIREX at least once every two missions. \*\*

e. Approximately 6.1 million square nautical miles (as of March 1969) of coverage outside the Soviet Bloc and Communist China for mapping and charting. The NRO will allocate a portion of film to mapping and charting without interfering with the specific requirements for the collection of other intelligence.

2. The relative priority of search, HPA's, and mapping and charting will be stated by COMIREX on a mission-by-mission basis.

3. This supersedes the CORONA imagery reconnaissance requirements as stated in USIB-D-41.15/79 (COMOR D-48/115, dated 16 September 1966) and USIB-D-46.4/27 (COMIREX D-13.16/3, dated 4 February 1969).

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\* In meeting the search requirement, monoscopic photography is included when it is judged adequate for search purposes.

\*\*See Attachment 3 for specific area definition.



EXAMPLE OF SUPPORTING DOCUMENT  
TO THE  
PROPOSED CORONA RECONNAISSANCE REQUIREMENTS

CORONA search and surveillance areas are defined as follows:

a. Special interest, bi-mission areas and targets are defined as:

Example: WAC 243; 245; 254-12 thru 16; 258-7, 9, and 15; 262-20-5 and 6, and COMIREX Targets 1A0056, 1A0080, 1B0083, 1D0068B, 1D0094, 1H0006, 1H0007, etc.

b. Semiannual search is defined as:

Example: WAC 200 thru 240; 250 thru 253; 254-1 thru 11; 257, 262-9, 10, and 14; 263 thru 265; and 269-7.

c. Annual search is defined as:

Example: WAC 241, 242, 246 thru 249, 254-17 thru 25, 255, 256, 258-1 thru 6, 8, 10 thru 14, and 16 thru 25; 259 thru 261; 262-1 thru 8, 11 thru 13, 15 thru 19, 20-1 thru 4, and 7 thru 16, and 21 thru 25; 266 thru 268; and 269-1 thru 6 and 8 thru 25.

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